

Amendments to the Claims

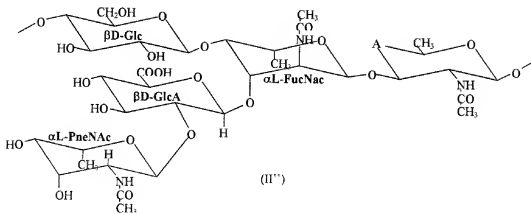
This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A pneumococcus type 5 capsular polysaccharide, wherein the polysaccharide is aminated on the terminal aldehyde group and exhibits
 - (i) ~~no resonance signal between 13 and 14 ppm inclusive in a carbon (¹³C) NMR spectrum having~~
 - (a) no resonance signal between 13 and 14 ppm inclusive;
 - (b) no resonance signal between 11.5 and 12.5 ppm, inclusive; and
 - (c) a resonance signal located between 17 and 18 ppm inclusive, characteristic of N-acetylated quinovosamine, the intensity of which is increased in comparison with the resonance signal located between 17 and 18 ppm, inclusive, in the (¹³C) NMR spectrum of a pneumococcus type 5 capsular polysaccharide obtained after reductive amination in the presence of sodium cyanoborohydride at pH 8 for 48 hours;
 - (ii) ~~no peak between fucosamine and pneumosamine peaks in an HPAEC-PAD chromatogram obtained by elution from an anion-exchange column in an 18 mM sodium hydroxide solution at a flow rate of 1 ml/min for 15 min of monosaccharides derived from hydrolysis of said polysaccharide having;~~
 - (a) no peak between fucosamine and pneumosamine peaks;
 - (b) or
 - (iii) both, and
- and wherein the anion-exchange column consists of a support based on polystyrene and sulfonated divinylbenzene having a degree of cross-linking of 55% and latex microbeads

with quaternary ammonium groups; wherein the latex microbeads have a degree of cross-linking of 5% and the diameter of 400 nm.

2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Canceled)
8. (Original) The polysaccharide according to Claim 5 in which at least 95% of the repeating units corresponding to formula (II) correspond to formula II'



in which A is CHOH.

9. (Canceled)
10. (Currently amended) ~~The A polysaccharide-polypeptide conjugate in which comprising a polysaccharide according to Claim 1 is coupled to a carrier polypeptide (P).~~
11. (Withdrawn) A method for producing an aminated pneumococcus type 5 capsular polysaccharide, wherein the polysaccharide is subjected to a reductive amination in the presence of a reducing agent selective for a Schiff base at a pH of 4 to 6.5 for a period not exceeding 4 hours.

12. (Withdrawn) The method according to Claim 11 in which the polysaccharide is subjected to a reductive amination at a pH of 5 to 6.
13. (Withdrawn) The method according to Claim 11 in which the polysaccharide is subjected to a reductive amination for a period not exceeding 2 hours.
14. (Withdrawn) The method according to Claim 11 in which the reducing agent selective for a Schiff base is cyanoborohydride or pyridine borane complex.
15. (Withdrawn) A method for producing an aminated pneumococcus type 5 capsular polysaccharide, according to which (i) the polysaccharide is reacted with an agent for reducing a ketone function, (ii) the reduced polysaccharide is fragmented, and (iii) the reduced and fragmented polysaccharide is subjected to a reductive amination.
16. (Withdrawn) The method according to Claim 15 in which the polysaccharide which is reacted with the agent capable of reducing a ketone function is in native form.
17. (Withdrawn) The method according to Claim 15 in which the agent capable of reducing a ketone function is NaBH_4 .
18. (Withdrawn) The method according to Claim 15 in which the reduced polysaccharide is fragmented by oxidative free-radical depolymerization.
19. (Withdrawn) A method for producing a conjugate of formula $\text{Ps-CH}_2\text{-NH-P}$, according to which a method according to Claim 11 is used, wherein the pneumococcus type 5 capsular polysaccharide (Ps) is coupled by reductive amination to a carrier polypeptide (P) in the presence of a reducing agent selective for a Schiff base at a pH of 4 to 6.5 for a period not exceeding 4 hours.
20. (Withdrawn) A method for producing a conjugate of formula $\text{Ps-CH}_2\text{-NH-P}$, according to which a method according to Claim 15 is used, in which the reduced and fragmented pneumococcus type 5 capsular polysaccharide (Ps) is coupled by reductive amination with a carrier polypeptide (P).
21. (Withdrawn) A method for producing a conjugate of formula $\text{Ps-CH}_2\text{-NH-L-P}$, according to which:

- (i) the method according to Claim 11 is used, wherein the pneumococcus type 5 capsular polysaccharide (Ps) is coupled by reductive amination to a linking agent (L) having at least one free amine function so as to form an aminated and activated polysaccharide of formula $\text{Ps-CH}_2\text{-NH-L}$, and the activated polysaccharide is coupled to a carrier polypeptide (P) in order to obtain the conjugate of formula $\text{Ps-CH}_2\text{-NH-L-P}$; or, alternatively,
 - (ii) the method according to Claim 11 is used, wherein the pneumococcus type 5 capsular polysaccharide (Ps) is coupled by reductive amination to an activated carrier polypeptide of formula L-P, wherein L is a linking agent having at least one free amine function, in order to obtain the conjugate of formula $\text{Ps-CH}_2\text{-NH-L-P}$.
22. (Withdrawn) A method for producing a conjugate of formula $\text{Ps-CH}_2\text{-NH-L-P}$, in which:
- (i) (a) a method according to Claim 15 is used, wherein the reduced and fragmented pneumococcus type 5 capsular polysaccharide (Ps) is coupled by reductive amination to a linking agent (L) having at least one free amine function so as to form an aminated and activated polysaccharide of formula $\text{Ps-CH}_2\text{-NH-L}$, and
 - (b) the activated polysaccharide is coupled to a carrier polypeptide (P) in order to obtain the conjugate of formula $\text{Ps-CH}_2\text{-NH-L-P}$; or, alternatively,
 - (ii) the method according to Claim 15 is used, wherein the reduced and fragmented pneumococcus type 5 capsular polysaccharide (Ps) is coupled by reductive amination to an activated carrier polypeptide of formula L-P, wherein L is a linking agent having at least one free amine function, in order to obtain the conjugate of formula $\text{Ps-CH}_2\text{-NH-L-P}$.
23. (Withdrawn) A method for producing a conjugate of formula $\text{Ps-CH}_2\text{-NH-S-L'-P}$, in which:
- (i) the method according to Claim 11 is used, wherein the pneumococcus type 5 capsular polysaccharide (Ps) is coupled by reductive amination to a spacer (S) having at least one free amine function, so as to form an aminated and derivatized polysaccharide of formula $\text{Ps-CH}_2\text{-NH-S}$, and

- (ii) (a) the derivatized polysaccharide is coupled with a linking agent (L'), in order to obtain an activated polysaccharide of formula $Ps-CH_2-NH-S-L'$, then the activated polysaccharide is coupled with a carrier polypeptide (P), in order to obtain the conjugate of formula $Ps-CH_2-NH-S-L'-P$; or, alternatively,
 - (b) the derivatized polysaccharide is coupled with an activated carrier polypeptide of formula $L'-P$, in which L' is a linking agent, in order to obtain the conjugate of formula $Ps-CH_2-NH-S-L'-P$.
24. (Withdrawn) A method for producing a conjugate of formula $Ps-CH_2-NH-S-L'-P$, in which:
- (i) the method according to Claim 15 is used, wherein the reduced and fragmented pneumococcus type 5 capsular polysaccharide (Ps) is coupled by reductive amination to a spacer (S) having at least one free amine function so as to form an aminated and derivatized polysaccharide of formula $Ps-CH_2-NH-S$, and
 - (ii) (a) the derivatized polysaccharide is coupled with a linking agent (L') in order to obtain an activated polysaccharide of formula $Ps-CH_2-NH-S-L'$, then the activated polysaccharide is coupled with a carrier polypeptide (P), in order to obtain the conjugate of formula $Ps-CH_2-NH-S-L'-P$; or, alternatively,
 - (b) the derivatized polysaccharide is coupled with an activated carrier polypeptide of formula $L'-P$, wherein L' is a linking agent, in order to obtain the conjugate of formula $Ps-CH_2-NH-S-L'-P$.
25. (Withdrawn) The method according to Claim 19, wherein the carrier polypeptide P is diphtheria toxoid or tetanus toxoid.
26. (Withdrawn) The method according to Claim 21, wherein the linking agent (L) is a compound of formula (XII) $R1-A-R2$, in which:

A denotes an aliphatic or aromatic chain or a mixed aliphatic and aromatic chain, which may be substituted or unsubstituted;

$R1$ denotes a primary amine or a chemical radical carrying a primary amine; and

$R2$ denotes a functional group capable of reacting with a carbonyl, thiol or amine group.

27. (Withdrawn) The method according to Claim 26, wherein the linking agent (L) is an alkyl dihydrazide or a diaminoalkyl.
28. (Withdrawn) The method according to Claim 23, wherein the spacer S is an aminothiol and the linking agent L' is a succinimidylmaleimidylalkyl.
29. (Withdrawn) The method according to Claim 23, wherein the spacer S is a diaminoalkyl or a dihydrazide, and the linking agent L' is chosen from disuccinimidylalkyl or succinimidylmaleimidoalkyl compounds of formula (XIV) R3-B-R4 in which B is an alkyl group, R3 is a succinimidyl group and R4 is a succinimidyl or maleimido group.
30. (Original) A pharmaceutical composition comprising a conjugate according to Claim 10.
31. (Currently amended) A pharmaceutical composition comprising a conjugate obtained by ~~subjecting-reducing ketone and aldehyde functions of~~ a pneumococcus type 5 capsular polysaccharide, ~~fragmenting the reduced polysaccharide, and subjecting the reduced and~~ fragmented polysaccharide to a reductive amination in the presence of a reducing agent selective for a Schiff base ~~at a pH of 4 to 6.5 for a period not exceeding 4 hours~~, wherein the pneumococcus type 5 capsular polysaccharide (Ps) is coupled by the reductive amination to a carrier polypeptide (P) to yield the conjugate.